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WENMM/SB/05 (1-99)#96907

# Utility Patent Application Transmittal

Attorney Docket Number 20181-2  
 First Inventor or Application Identifier Patrick Egan  
 Title PRE-FABRICATED WALL PANELING  
 Express Mail Label Number EM544390161US

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents

Address To: Commissioner for Patents  
 Box Patent Application  
 Washington, DC 20231

\*Fee Transmittal Form (e.g., PTO/SB/17)

2. ☒ Specification [Total Pages 14]

(preferred arrangement set forth below)

- Descriptive title of the invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Investigation
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. ☒ Drawing(s) (35 U.S.C. 113) **FORMAL** (informal) 4 pgs.

4. Oath or Declaration [Total Pages 3]

- a. ☒ Newly executed (original or copy)
- b. ☐ Copy from a prior application (37 C.F.R. §1.63(d))  
 (for continuation/divisional with Box 16 completed)
- i. ☐ **DELETION OF INVENTOR(S)**  
 Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.53(b).

5. ☐ Microfiche Computer Program (Appendix)

6. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)

- a. ☐ Computer Readable Copy
- b. ☐ Paper Copy (identical to computer copy)
- c. ☐ Statement verifying identity of above copies

## ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))

8. ☐ 37 C.F.R. § 3.73(b) Statement ☒ Power of Attorney (when there is an assignee)

9. ☐ English Translation Document (if applicable)

10. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☒ Copies of IDS Citations

11. ☐ Preliminary Amendment

12. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)

13. ☒ \*Small Entity Statements (2) ☐ Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)

14. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)

15. ☐ Other:

\*Note for items 1 & 13: In order to be entitled to pay Small Entity fees, a small entity statement is required (37 C.F.R. § 1.27), except if one filed in a prior application is relied upon (37 C.F.R. § 1.28).

16. If a **CONTINUING APPLICATION**, check appropriate box, and supply the requisite information below and in a preliminary amendment:

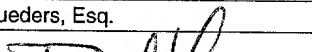
☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: filed. Prior application information: Examiner: Group / Art Unit:

For **CONTINUATION** or **DIVISIONAL APPS** only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

## 17. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Label or ☒ Correspondence address below

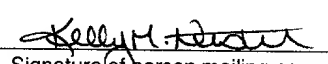
Insert Customer No. or Attach bar code label here

Name Daniel J. Lueders, Esq.  
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 Signature  Date: Aug. 8, 2000

Express Mail Label Number EM544390161US

Date of Deposit: August 8, 2000

I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR Section 1.10 on the date indicated above and is addressed to the Commissioner for Patents, Washington DC 20231.

  
 Signature of person mailing paper or fee

APPLICANT OR PATENTEE: Patrick Egan

SERIAL OR PATENT NO:

FILE OR ISSUE DATE:

TITLE: **PRE-FABRICATED WALL PANELING**

ATTORNEY'S DOCKET NO. 20:kmn:20181-2

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY  
STATUS (37 CFR 1.9(f) and 1.27(b)) - INDEPENDENT INVENTOR**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(C) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled **PRE-FABRICATED WALL PANELING** described in

- ☒ The specification filed herewith.  
☐ Application Serial No., filed \_\_\_\_\_  
☐ Patent No. \_\_\_\_\_, issued \_\_\_\_\_

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9 (e)

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ no such person, concern, or organization  
☐ persons, concerns or organizations listed below\*

\*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT  
ORGANIZATION

FULL NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT  
ORGANIZATION

FULL NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT  
ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Aug 7 200  
Date of Signature

Patrick Egan  
Patrick Egan

APPLICANT OR PATENTEE: Patrick Egan

SERIAL OR PATENT NO:

FILE OR ISSUE DATE:

TITLE: **PRE-FABRICATED WALL PANELING**

ATTORNEY'S DOCKET NO. 20181-2 (20:kmn)

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY  
STATUS (37 CFR 1.9(f) and 1.27(c)) – SMALL BUSINESS CONCERN

I hereby declare that I am

- ☐ the owner of the small business concern identified below:  
☒ an official of the small business entity empowered to act on behalf of the  
concern identified below:

NAME OF CONCERN: Thermocore Structural Insulated Panel Systems  
ADDRESS OF CONCERN: 60 James Baldwin Drive  
Martinsville, Indiana 46151

I hereby declare that above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d) for the purpose of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, par-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled **PRE-FABRICATED WALL PANELING** by inventor Patrick Egan described in:

- ☒ The specification filed herewith.  
☐ Application Serial No., filed \_\_\_\_\_  
☐ Patent No. \_\_\_\_\_, issued \_\_\_\_\_

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below\* and no rights to the invention are held by any other person, other than the inventor, who could not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

FULL NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT  
ORGANIZATION

FULL NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT  
ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

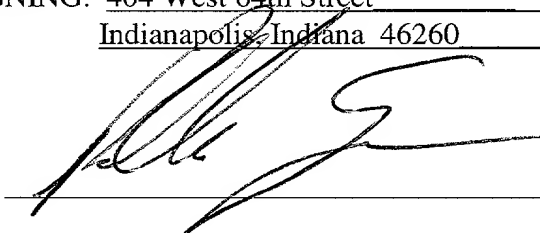
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Patrick Egan

TITLE OF PERSON OTHER THAN OWNER: President

ADDRESS OF PERSON SIGNING: 404 West 64th Street  
Indianapolis, Indiana 46260

AUG 7, 2000  
Date



\* NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

## PRE-FABRICATED WALL PANELING

### BACKGROUND OF THE INVENTION

This invention relates generally to prefabricated wall paneling and building assemblies made therefrom, and more specifically to such paneling having polymeric in-situ foam core located therein.

In addition to conventional stick framing, a variety of pre-fabricated wall panel structures exist in the prior art to take advantage of the benefits of pre-fabricated wall paneling such as factory controlled assembly, quality and labor savings in the field when assembling a building such as a home or other structure. Examples of such prior devices are set forth in U.S. Patent Nos. 4,109,436 by Berloty; 4,628,650 by Parker; 5,353,560 by Heydon; and 5,765,330 by Richard.

The prior art also includes pre-fabricated wall panels sold by the applicant which are substantially the same as the invention disclosed and claimed herein except that the struts are made of standard 2 inch by 4 inch nominal lumber (i.e., 1½ inch by 3½ inch actual cross-sectional dimension). As such, the overall panel thickness was approximately 4½ inches. The present invention takes advantage of these prior art advantages except that the overall panel thickness is only 4 inches total, including the struts and the two 2 generally rigid sheets on either side of the struts. The present invention provides excellent strength and thermal insulation characteristics while being a thinner and specialized thickness compared to its predecessor product. This facilitates faster and more cost effective installation because standardized window and door jambs may be mounted in predetermined locations, pre-fabricated into the panel and/or

building assembly while being flush with the panel when a sheet of drywall is secured thereto. Other cost and transportation efficiencies result as well.

## **SUMMARY OF THE INVENTION**

The invention is set forth literally in the claims. It is not to be embellished or narrowed by expressed or inferred advantages, functionalities for features in the specification. Mindful of this, the invention generally can be summarized as a pre-fabricated wall panel. The wall panel comprises a first, exterior facing sheet and a second interior-facing sheet spaced apart a strut thickness. At least two (2), and often times more, framing struts are located between the sheets and define a panel volume between the sheets. A polymeric in-situ foam core is located in and substantially fills the panel volume. The overall panel thickness is four (4) inches.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a front view of a representative sample of a panel made according to the present invention;

FIG 1A is a cross-sectional view along lines 1A-1A of FIG. 1;

FIG 1B is a sectional view taken along line 1B-1B of FIG. 1;

FIG. 1C is an enlarged view of portion of FIG. 1A;

FIG. 2 is a side view of the device of FIG. 1;

FIG. 3 is a top view of the device of FIG. 1;

FIG. 4 is a bottom view of the device of FIG. 1;

FIG. 5 is a partial top view of one optional type of joining section between wall panels according to the present invention;

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## DESCRIPTION OF THE PREFERRED EMBODIMENTS

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, and alterations and modifications in the illustrated device and method, and further applications of the principles of the invention as illustrated therein are herein contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring to the drawing figures, and in particular drawing figures 1-5, panel 21 according to the present invention is provided. The panel has a first, exterior-facing sheet 23 of a generally rigid material, and further has a second, interior-facing sheet 25 of a generally rigid material. Sheets 23 and 25 preferably are made from a wood-based material, for example plywood or OSB board, the later being generally preferable. Such sheets each have a thickness, most preferably 7/16 inches thick, but ordinarily in the range of about half an inch in thickness. Such thickness is illustrated as thicknesses  $T_1$  and  $T_2$  in FIG. 1C. The sheets 23 and 25 are generally parallel to each other, being spaced apart by framing struts located between the sheets. There are typically at least two, and usually more framing struts per panel, these framing struts are illustrated in the drawings as struts 27a, 27b, 27c, 27d, 27e, 27f, 27g, 27h, 27i and 27j. The struts may follow the entire perimeter of sheets 23 and 25. Such framing struts preferably have a strut thickness  $T_3$  (see FIG. 1C) of 3 3/16 inches in actual dimension, although they may be within about 1/4 inch, and preferably a 1/8 inch range, plus or minus, of that dimension (e.g.,  $T_3 = 3$  inches). Typically, the sheets 23 and 27 are secured to the framing struts by nails, screws or other fastener. The spaces formed in the panel volume line between sheets 23 and 24 and the framing struts. This

003030" 4252930

volume, while initially air, is substantially filled with a polymeric in-situ foam core 29. Preferably, this foam cores is a rigid foam preferred in-situ, and preferably comprises polyurethane. It is understood that other foams having suitable insulation properties, and preferably rigid structural properties may be used, including other polymers as well as blends and/or copolymers with polyurethane. In practice, applicant has used BASF brand autofroth spray polyurethane including BASF 102B9453 resin and 9300A isocyanate blended together. This polyurethane foam expands in-situ in the panel volume, contacting the interior surfaces of sheets 23 and 25 as well as the framing struts, which are typically made of wood. When the foam cures, it adheres to such members, further integrating their strength and adding to the non-compressibility of the overall panel structure. Moreover, the foam servers to greatly enhance the thermal insulation characteristics. Applicant has found that with the inventive panel being 4 inches thick, the thermal insulation qualities are in excessive in an R value of 15, in excess of an R value of 20, and actually achieve an R value through the foamed panel of about 25.

Preferably the foam to make core 29 is injected into the panel volume after the first and second sheets are secured to the strut members. The strut members act as dams, either completely enclosing the panel volume, or alternatively partially enclose the panel volume. In the case of a partial enclosure, temporary dams are held in place to prevent the foam from oozing out until it cures. In either event, the foam is injected around the perimeter under pressure, typically in series, typically at injection openings in the struts approximately ever 4 feet around the entire perimeter. This is done while the panels are held in compression horizontally under a large press with medal beams so as to confine expansive deflection of the panel sheets.

The in-situ foaming is often done with electrical boxes, such as electrical box 31 and 35, and electrical conduit connecting such boxes, such as conduit 33 in place. Such electrical boxes

and conduits are prefabricated into the panel mounted flush with interior sheet 25. Such mounting is done prior to injection of the in-situ foam. In this way, the in-situ foam surrounds such electrical boxes and conduits, further mechanically holding them in place and providing thorough insulation around such parts. Electrical boxes are typically placed, like the other features of the present invention, as a function of a floor plan design predetermining the location of such features. The electrical conduit extends to a perimeter access 37 (see FIG. 1) whereby on the job site electricians can access such conduit to wire electrical boxes appropriately to wall outlets, light switches and the like.

As seen in FIG. 1, one optional configuration of the present wall panel is to have a prefabricated window opening, such as window opening 39 in the panel. One or more such window openings can be made, and they may be made of any shape correspond to the window design for that part of the wall. As illustrated in FIG.1, window opening 39 is partially defined by framing struts 27a, 27b, 27c, and 27d. This provides a structural member in which to mount the window jambs. They also act as dams that contain the in-situ foam from leaking out into the window opening 39. The window opening is filled with a window 31 (see FIG. 7), typically provided from a window vendor. The window has window jambs 42 having a thickness  $T_5$ . Many off the shelf window jambs have a thickness  $T_5$  of 4 9/16 inches as a standard dimension. With the present invention having an overall panel thickness of approximately 4 inches (plus or minus a quarter inch), and more preferably 4 1/16 inches in the most preferred form, when the drywall sheet 43 is secured to the interior sheet 25, the overall thickness of the wall panel in combination with the 1/2 inch drywall is either exactly 4 9/16 inches thick, or closely approaches that dimension. In this way, with a finished assembly, the window jamb 42 is flush with the exterior of surface exterior sheet 23 and with the interior surface of the drywall 43. One



one optional, preferred mode of creating this connection, and in particular of creating projection member 49 is to have it formed by two projection flanges 49a and 49b (see FIG. 5). Preferably, these are cut from OSB or plywood and are lap jointed and secured along the inner edges sheets 23 and 25 secured thereto. Also, preferably these are left hollow so that in-situ foam may occupy the inner part of this male member as well. In this way, the finished assembly when the male projection 49 is inserted into the female portion 51, although the overall thickness is approximately 4 inches as described above, it occurs with insulating foam along all parts of the wall. In this way, there are no cold spots allowing thermal leakage. Alternatively, the end arrangements may be made including having the strut member flush with the perimeter edge of the paneling such as strut member 27j (see FIG. 8). Alternatively, as also seen in FIG. 8, selected wall panels may be formed with no internal strut member along a given edge of the wall panel, instead being formed with the foam in-situ as a temporary dam that is removed after the foam cures. Other approaches may be to modify preferred cross-sectional geometry of the framing struts. Although the preferred cross-sectional dimension of such struts is exactly 1 1/2 inches by 3 3/16 inches, it may be modified within tolerance of this such as being 1 1/2 inch by 3 inches. Moreover, it may be formed by a larger cross-sectional piece of wood cut, such as by rabbetting. In this way, a generally L-shaped piece of wood is formed with a rabbet having a cut thickness corresponding to either sheet 23 or 25 sitting within the rabbet, while nevertheless maintaining the interior spacing between such sheets (thickness  $T_3$ ) at distances to achieve the dimensions preferred in the present invention with the overall wall thickness  $T_4$ . For example, a rabbet could be cut three quarter inch by 7/16 inch to accommodate a 7/16 inch OSB board.

Another optional feature is the formation of a bottom female recess 53 (see FIG. 2) formed between sheets 23 and 25 on either side of a recess on the bottom perimeter edge in the foam 29.

This recess ordinarily has a vertical dimension of 1 ½ inches and a horizontal dimension identical to the spacing T<sub>3</sub> between the sheets. This recess is used in onsite assembly of the wall panels to be built into a building assembly. Typically, after the floor structure is build, footers, typically made of wood (dimension the same as the struts in the present invention) are fastened to the floor. Thereafter, wall panels are located on such footers with recess 53 sliding over such footers for securement thereto. This helps control the layout of wall panels and provide a secure basis for attachment together with the remainder of the structure.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

What is claimed is:

1. A pre-fabricated wall panel, comprising:

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,

an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus  $\frac{1}{4}$  inch.

2. The pre-fabricated wall panel of claim 1 and further comprising at least one electrical box located between said first sheet and said second sheet and at least one conduit for electrical wires running between said electrical box and said first sheet perimeter, and wherein said in-situ foam at least partially surrounds said electrical box and said conduit.

3. The pre-fabricated wall panel of claim 2 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

4. The pre-fabricated wall panel of claim 3 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of  $\frac{9}{16}$  inches and being mounted in substantially flush alignment with said overall panel thickness.

5. The pre-fabricated wall panel of claim 4 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.

6. The pre-fabricated wall panel of claim 5 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

7. The pre-fabricated wall panel of claim 6 wherein said first side panel and said second side panel are made from wood-based material.

8. The pre-fabricated wall panel of claim 7 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

9. The pre-fabricated wall panel of claim 8 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

10. The pre-fabricated wall panel of claim 9 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

11. The pre-fabricated wall panel of claim 1 and further comprising a window opening correspondingly cut in said first sheet and said second sheet, and wherein said window opening is partially defined by strut members around a perimeter thereof.

12. The pre-fabricated wall panel of claim 11 and further comprising a window mounted in said window opening, said window having window jambs having a thickness of 4 9/16 inches and being mounted in substantially flush alignment with said overall panel thickness.

13. The pre-fabricated wall panel of claim 1 wherein said wall panel has a thermal insulation R-value through a foam containing portion of said thickness of at least 20.



14. The pre-fabricated wall panel of claim 1 wherein the panel has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

15. The pre-fabricated wall panel of claim 1 wherein said first side panel and said second side panel are made from wood-based material.

16. The pre-fabricated wall panel of claim 1 wherein said in-situ foam is a rigid foam cured in-situ substantially comprising polyurethane.

17. The pre-fabricated wall panel of claim 1 wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches.

18. The pre-fabricated wall panel of claim 1 having a ½ inch thick sheet of drywall secured adjacent said second panel, said drywall having an interior surface that is flush with a jamb member interior edge.

19. A building assembly, comprising:

at least two pre-fabricated wall panels connected to each other, each of said wall panels including

a first, exterior facing sheet of generally rigid material and having a first thickness and a first sheet perimeter;

a second, interior facing sheet of generally rigid material and having a second thickness and a second sheet perimeter, said second sheet being generally parallel to said first sheet and spaced therefrom a strut thickness;

at least two framing struts being located between said first sheet and said second sheet and having said strut thickness to define a panel volume between said first sheet, said second sheet, and said framing struts;

a polymeric in-situ foam core located in and substantially filling said panel volume; and,  
an overall panel thickness including the sum of said first thickness, said second thickness and said strut thickness, said overall panel thickness being four inches, plus/minus ¼ inch;  
a jamb member secured adjacent at least one of said struts; and,  
sheets of drywall secured adjacent said second panels, said drywall having an interior surface that is flush with a jamb member interior edge.

20. The building assembly of claim 19 wherein said jamb has a thickness of 4 9/16 inches and said drywall has a thickness of ½ inch.

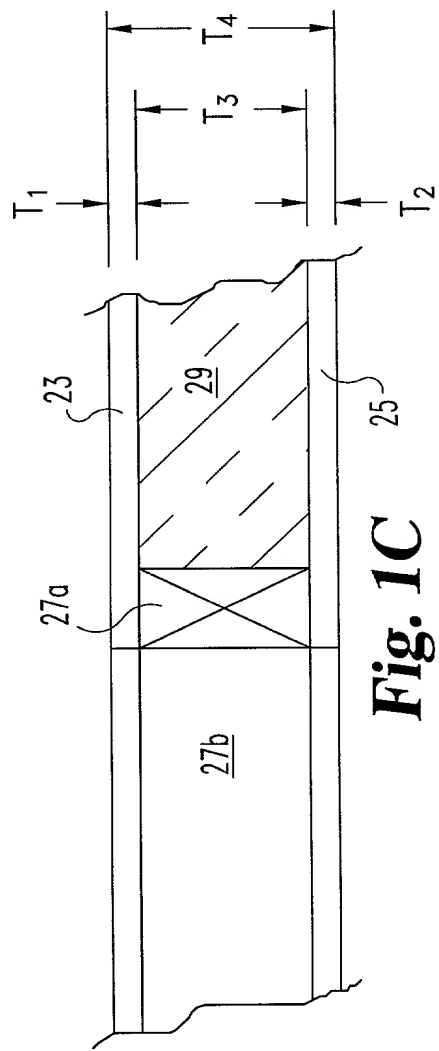
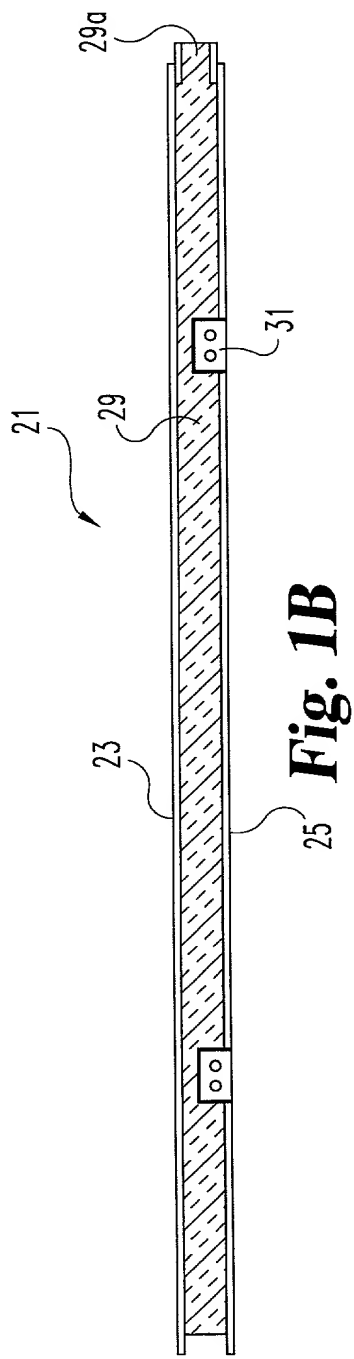
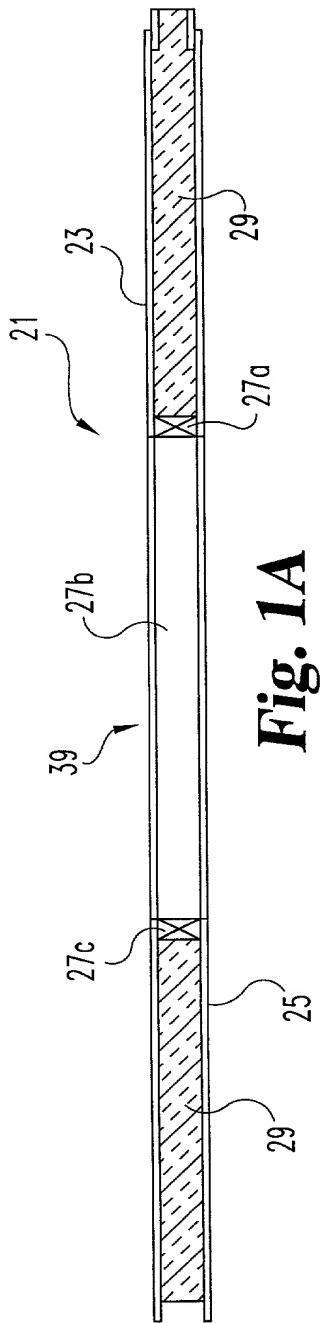
21. The building assembly of claim 20 wherein one of said panels has a first vertical side edge having a male projection member adapted to project into a corresponding female reception member on an adjacent panel.

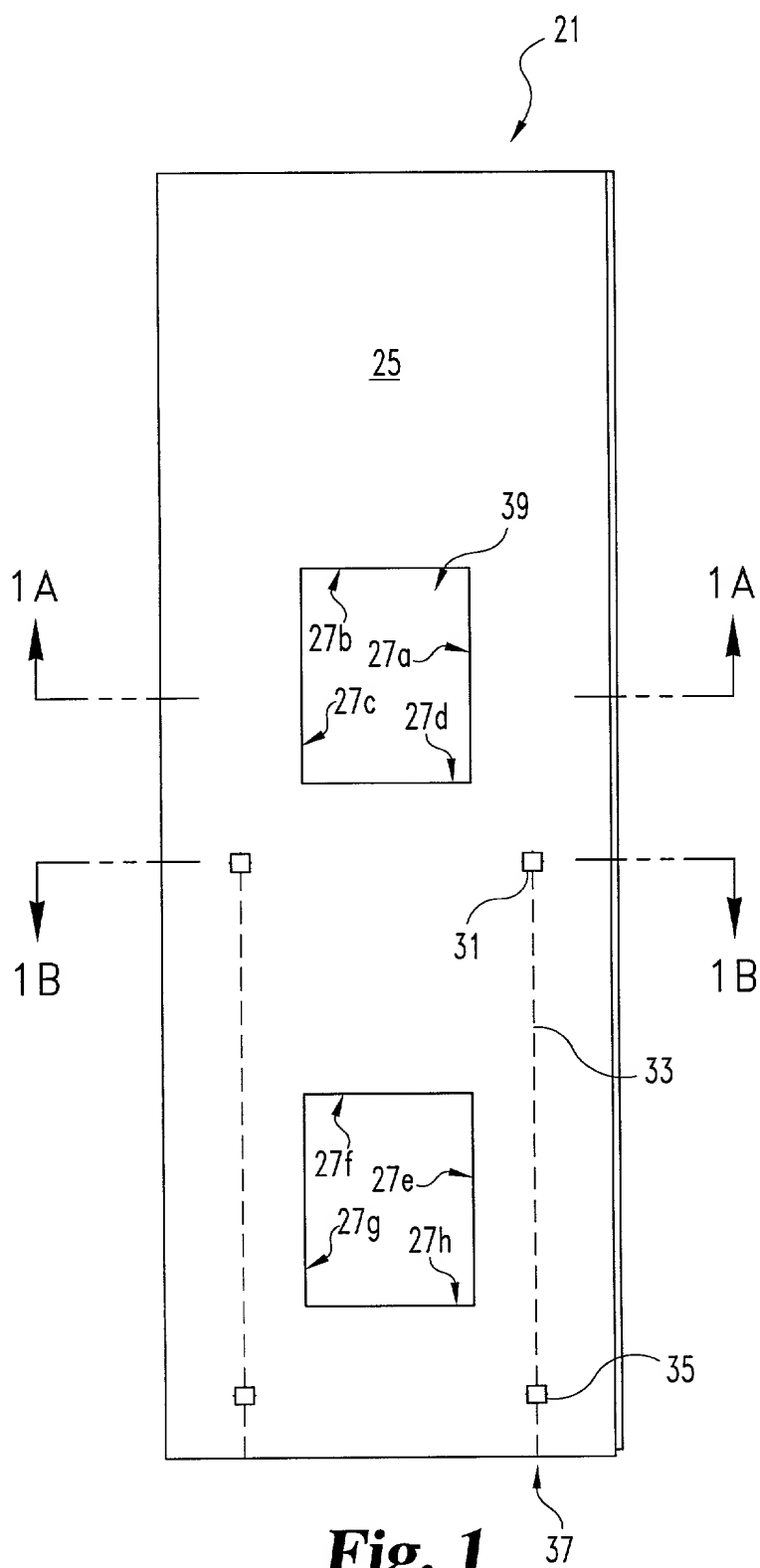
22. The building assembly of claim 21 wherein said male projection comprises two members lap jointed along an inside surface of corresponding first and second facing sheets, and wherein polymeric in-situ foam is located between said two lap jointed members.

23. The building assembly of claim 21 wherein said wall panels have a thermal insulation R-value through a foam containing portion of said thickness of at least 20; wherein said struts comprise wooden struts having an actual cross-sectional dimensioning of about 1½ inches by 3 3/16 inches; and, wherein said first sheet and said second sheet are each made from 7/16 inch thick OSB.

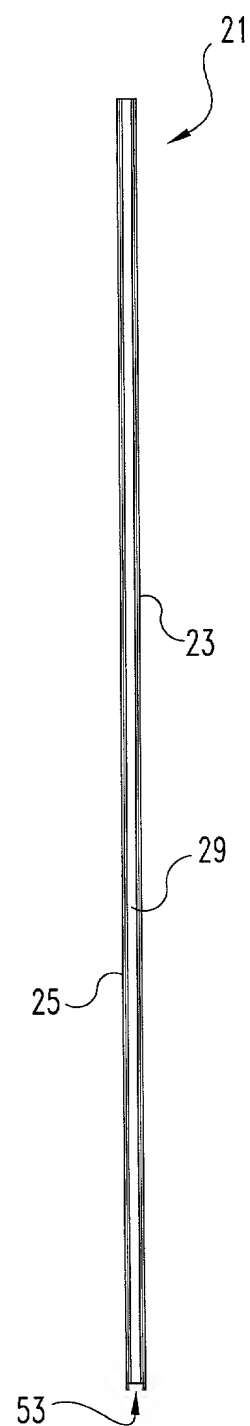
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Marital status	0.6	0.5	0	1
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Income	15.2	5.8	5	35
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Alcohol consumption	0.2	0.4	0	1
Exercise frequency	0.5	0.5	0	1
Stress level	3.2	1.8	1	5
Sleep quality	2.8	1.5	1	5
Work satisfaction	3.5	1.2	1	5
Life satisfaction	4.2	1.0	1	5
Depression score	1.5	1.2	0	5
Anxiety score	1.8	1.3	0	5
Resilience score	3.8	1.1	1	5
Optimism score	4.0	1.0	1	5
Self-efficacy score	3.6	1.1	1	5
Perceived stress score	2.5	1.4	1	5
Work-life balance score	3.0	1.2	1	5
Overall well-being score	3.8	1.0	1	5

Variable	Mean	SD	Min	Max
Age	34.5	10.2	18	65
Gender	0.5	0.5	0	1
Marital status	0.6	0.5	0	1
Education	12.5	1.5	9	16
Income	15.2	5.8	5	35
Health status	0.8	0.4	0	1
Smoking status	0.3	0.5	0	1
Alcohol consumption	0.2	0.4	0	1
Exercise frequency	0.5	0.5	0	1
Stress level	3.2	1.8	1	5
Sleep quality	2.8	1.5	1	5
Work satisfaction	3.5	1.2	1	5
Life satisfaction	4.2	1.0	1	5
Depression score	1.5	1.2	0	5
Anxiety score	1.8	1.3	0	5
Resilience score	3.8	1.1	1	5
Self-efficacy score	3.0	1.0	1	5
Optimism score	3.5	1.1	1	5
Gratitude score	3.2	1.0	1	5
Forgiveness score	3.0	1.0	1	5
Compassion score	3.5	1.1	1	5
Empathy score	3.8	1.2	1	5
Emotional stability	3.0	1.0	1	5
Neuroticism score	1.5	1.2	0	5
Extraversion score	3.5	1.1	1	5
Conscientiousness score	3.8	1.2	1	5
Agreeableness score	3.5	1.1	1	5
Openness score	3.2	1.0	1	5
Overall well-being	3.5	1.0	1	5





**Fig. 1**



**Fig. 2**





DECLARATION AND POWER OF ATTORNEY  
FOR PATENT APPLICATION

Docket No. 20181-2

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention **PRE-FABRICATED WALL PANELING**, the specification of which

(check one) ☒ is attached hereto.  
☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	_____ Yes	_____ No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	_____ Yes	_____ No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	_____ Yes	_____ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to



disclose material information as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status - patent/pending/abandoned)
(Application Serial No.)	(Filing Date)	(Status - patent/pending/abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Harold R. Woodard, No. 16,214; C. David Emhardt, No. 18, 483; Joseph A. Naughton, Jr., No. 19, 814; John V. Moriarty, No. 26,207; John C. McNett, No. 25,533; Thomas Q. Henry, No. 28,309; James M. Durlacher, No. 28,840; Charles R. Reeves, No. 28,750; Vincent O. Wagner, No. 29,596; Steve Zlatos, No. 30,123; Spiro Bereveskos, No. 30,821; William F. Bahret, No. 31,087; Clifford W. Browning, No. 32,201; R. Randall Frisk, No. 32,221; Daniel J. Lueders, No. 32,581; Kenneth A. Gandy, No. 33,386; Timothy N. Thomas, No. 35,714; Kerry P. Sisselman, No. 37,237; Kurt N. Jones, 37,996; John H. Allie, No. 39,088; Holiday W. Banta, No. 40,311; Troy J. Cole, No. 35,102; L. Scott Paynter, No. 39,797; J. Andrew Lowes, No. 40,706; Charles J. Meyer, No. 41,996; Darrin Wesley Harris, No. 40,636; Matthew R. Schantz, No. 40,800; Gregory B. Coy, No. 40,967; Lisa A. Hiday, No. 40,036; John V. Daniluck, No. 40,581; Christopher A. Brown, No. 41,642; Arthur J. Usher, IV, No. 41,359; Douglas A. Collier, No. 43,556; R. Craig Tucker, No. 45,165; Scott J. Stevens, No. 29,446; and James B. Myers, Jr., No. 42,021.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

